



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,534	01/15/2002	Brian A. Urbach	TRW(M)5857	4987

26294 7590 11/15/2004

TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P.
526 SUPERIOR AVENUE, SUITE 1111
CLEVEVLAND, OH 44114

EXAMINER

GARCIA, ERNESTO

ART UNIT PAPER NUMBER

3679

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,534

Applicant(s)

URBACH, BRIAN A.

Examiner

Ernesto Garcia

Art Unit

3679



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings were received on 8/23/04. These drawings are acceptable.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the new limitation "said first frustoconical surface being angled so that imaginary lines , extending from diametrically opposite portions of the first frustoconical surface, intersect at a first location within said through hole and between the first and second side surfaces" in lines 9-14 and "said second frustoconical surface being angled so that imaginary lines extend from diametrically opposite portions

Art Unit: 3679

of said second frustoconical surface intersect a second location within said through hole and between said first and second side surfaces" in lines 14-18 have no support in the specification or the drawings. Applicant cannot rely on the figures as the figures are not to scale. Since the drawings are not to scale, the plate could be as small, thus the imaginary lines will intersect outside the through hole. Furthermore, since the angle of the frustoconical surface varies according to lines 19-21 on page 4, the imaginary lines will not intersect within the through hole. Thus, the subject matter added has no concrete support in the application. Also the new subject matter "said third frustoconical surface being angled so that, when in engagement with said first frustoconical surface, imaginary lines extend from diametrically opposite portions of said third frustoconical surface intersect at a third location within said through hole of said second suspension member and between said first side surface and the second side surface" in lines 34-39 is not supported in the specification. The new matter rejection also applies to the fourth frustoconical surface in lines 43-49.

Regarding claims 5-12, the claims depend from claim 1 and therefore contain new subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795 (see marked-up attachment), in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135.

Regarding claim 1, Stroh discloses, in Figure 3, an apparatus comprising a first suspension member **1**, a second suspension member **2**, a socket **A8**, a one-piece stud **10**, and a fastener **11**. The second suspension member **2** has a first side surface **A30**, a second side surface **A31** opposite the first side surface **A30**, and a through hole **8** extends between the first side surface **A30** and the second side surface **A31**. A first surface **13** defines a first end **A5** and a second surface **15** defines a second end **A7** of the through hole **8**.

The first surface **13** is angled so that imaginary lines, extending from diametrically opposite portions of the first surface **13**, intersect at a first location within the through hole **8** and between the first side surface **A30** and second side surface **A31**.

Art Unit: 3679

The second surface **15** is angled so that imaginary lines, extending from diametrically opposite portions of the second surface **15**, intersect a second location within the through hole **8** and between the first side surface **A30** and the second side surface **A31**.

A cylindrical surface **A21** is interposed between the first surface **13** and the second surface **15** and defines a central portion **A22** of the through hole **8**.

The socket **A8** is connected with the first suspension member **1**. The stud **10** has a first end portion **A10** and a second end portion **7**. The socket **A8** supports the first end portion **A10** in the socket **A8**. The second end portion **7** projects from the socket **A8** and completely through the through hole **8**. The second end portion **7** has a third surface **12** in engagement with the first surface **13**. The fastener **11** is secured to the second end portion **7**. The fastener **11** has a fourth surface **15** in engagement with the second surface **15** of the second suspension member **2**. The second end portion **7** extends completely through the fastener **11**.

The third surface **12** is angled so that, when in engagement with the first surface **13**, imaginary lines, extending from diametrically opposite portions of the third surface **12**, intersect at a third location within the through hole **8** and between the first side surface **A30** and second side surface **A31**. The fourth surface **14** is angled so that, when in engagement with the second surface **15**, imaginary lines, extending from diametrically opposite portions of the second surface **14**, intersect a fourth location

Art Unit: 3679

within the through hole **8** and between the first side surface **A30** and the second side surface **A31**.

The socket **A8** and the stud **10** support the first suspension member **1**. The fastener **11** causes the first surface **13** and the third surface **12** to be pressed together, and the second surface **15** and the fourth surface **15** to be pressed together to secure the second suspension member **2** relative to the second end portion **7** of the stud **10**.

However, Stroh fails to disclose the first surface **13**, the second surface **15**, the third surface **12**, and the fourth surface **15** being frustoconical. Sommerer teaches, in Figure 2, a first surface **B1**, a second surface **B2**, a third surface **B3**, and a fourth surface **B4** being frustoconical. Sommerer does not explicitly explain why the surfaces are frustoconical. It appears that frustoconical surfaces are an alternative configuration for mating and aligning parts together. Applicant is urged to view Greubel et al. for support of choosing the surface to be spherical or frustoconical (col. 3, line 61 - col. 4, line 10). Therefore, as taught by Sommerer and Greubel et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the surfaces frustoconical to mate and align parts together.

Regarding claim 5, as modified above, the fastener **11** is a nut and the second end portion **7** of the stud **10** has a threaded end portion (col. 2, lines 47-49). The

Art Unit: 3679

threaded end portion **7** extends to a shoulder **A32** that forms an end of the third frustoconical surface **12**.

Regarding claims 6 and 8, the second end portion **7** of the stud **10** has a cylindrical portion **A24** extending from the third surface **12** of the stud **10** in a direction away from the first end portion **A10** of the stud **10**. The cylindrical portion **A24** has a diameter **A25** smaller than a smallest diameter **A26** of the third surface **12** of the stud **10**. The cylindrical portion **A24** of the second end portion **7** of the stud **10** is spaced away from and extends parallel to the cylindrical surface **A21** of the second suspension member **2** when the cylindrical surface **A21** is in abutting engagement with the first surface **13**. The cylindrical surface **A21** of the second end portion **7** includes external threads extending axially to the third frustoconical surface **12**.

Regarding claim 7, the stud **10** has a longitudinal central axis **A15** on which the third surface **12** is centered. The third surface **12** of the stud **10** extends at a first angle **A23** to the central axis **A15**. The first surface **13** and the second surface **15** of the second suspension member **2** extend at the first angle **A23** relative to the central axis **A15**. The fourth surface **15** extends at the first angle **A23** to the central axis **A15** when the fastener **11** is secured to the second end portion **7** of the stud **10**. The fastener **11** is a nut and the second end portion **7** of the stud **10** has a threaded end portion (col. 2, lines 47-49).

Art Unit: 3679

Regarding claim 10, as modified above, the first surface **13** and the cylindrical surface **A21** converge with one another in the through hole **8** the second suspension member **2**. The second surface **15** and the cylindrical surface **A21** converge with one another in the through hole **8** in the second suspension member **2**.

Regarding claim 11, as modified above, the cylindrical surface **A21** extends from the first surface **15** to the second surface **15** so that the first surface **13**, the second surface **15** and the cylindrical surface **A21** entirely form the through hole **8** in the second suspension member **2**.

Regarding claim 12, the first location and the third location within the through hole are identical locations. The second location and the fourth location are identical locations.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795, in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135, as applied to claims 1-8, and further in view of Pazdirek et al., 6,505,989.

Regarding claim 9, Stroh, as discussed above, discloses the second end portion **7** of the stud **10** includes a terminal end **A27**. The terminal end **A27** is located on a side **A28** of the fastener **11** opposite the first end portion **A10** when the fastener **11** is secured to the second end portion **7** of the stud **10**. However, Stroh fails to disclose the

Art Unit: 3679

terminal end **A27** having a hexagonal configuration. Pazdirek et al. teach in Figure 2 a terminal end having a hexagonal configuration (see Fig. 1 from the top view). Pazdirek et al. do not elaborate on this feature. It appears however, that the hexagonal configuration prevents the stud from being rotated in a through hole when a fastener is fastened to a threaded portion of the stud. Therefore, as taught by Pazdirek et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the terminal end have the hexagonal configuration to prevent the stud from slipping in the through hole when the fastener is fastened to the stud.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stroh, 6,257,795 (see marked-up attachment), in view of Sommerer, 5,062,655 (see marked-up attachment) and Greubel et al, 6,416,135.

Regarding claim 2, Stroh discloses, in Figure 3, an apparatus comprising a first suspension member **1**, a second suspension member **2**, a socket **A8**, a one-piece stud **10**, and a fastener **11**. The second suspension member **2** has a through hole **8** with a first surface **13** and a second surface **15**. The first surface **13** defines a first end **A5** of the through hole **8** and the second surface **15** defines a second end **A7** of the through hole **8**. The first surface **13** and the second surface **15** converge toward a center **A20** of the second suspension member **2**. A cylindrical surface **A21** is interposed between the first surface **13** and the second surface **15** and defines a central portion **A22** of the through hole **8**.

The socket **A8** is connected with the first suspension member **1**. The stud **10** has a first end portion **A10** and a second end portion **7**. The socket **A8** supports the first end portion **A10** in the socket **A8**. The second end portion **7** projects from the socket **A8** and completely through the through hole **8**. The second end portion **7** has a third surface **12** in engagement with the first surface **13**. The fastener **11** is secured to the second end portion **7**. The fastener **11** has a fourth surface **15** in engagement with the second surface **15** of the second suspension member **2**. The second end portion **7** extends completely through the fastener **11**.

The socket **A8** and the stud **10** support the first suspension member **1**. The fastener **11** causes the first surface **13** and the third surface **12** to be pressed together, and the second surface **15** and the fourth surface **15** to be pressed together to secure the second suspension member **2** relative to the second end portion **7** of the stud **10**.

However, Stroh fails to disclose the first surface **13**, the second surface **15**, the third surface **12**, and the fourth surface **15** being frustoconical. Sommerer teaches, in Figure 2, a first surface **B1**, a second surface **B2**, a third surface **B3**, and a fourth surface **B4** being frustoconical. Sommerer does not explicitly explain why the surfaces are frustoconical. It appears that frustoconical surfaces are an alternative configuration for mating and aligning parts together. Applicant is urged to view Greubel et al. for support of choosing the surface to be spherical or frustoconical (col. 3, line 61 - col. 4.

Art Unit: 3679

line 10). Therefore, as taught by Sommerer and Greubel et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the surfaces frustoconical to mate and align parts together.

Furthermore, as modified above, the stud **10** has a longitudinal central axis **A15** on which the third frustoconical surface **12** is centered. The third frustoconical surface **12** of the stud **10** extends at a first angle **A23** to the central axis **A15**. The first frustoconical surface **13** and the second frustoconical surface **15** of the second suspension member **2** extend at the first angle **A23** relative to the central axis **A15**.

Regarding claim 3, the fourth surface **15** on the fastener **11** extends at the first angle **A23** relative to the central axis **A15** when the fastener **11** is secured to the second end portion **7** of the stud **10**.

Regarding claim 4, the third surface **12** extends at a 45-degree angle to the central axis **A15**.

Response to Arguments

Applicant's arguments with respect to claims 1 and 5-12 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed August 23, 2004 in respect to claims 2-4 have been fully considered but they are not persuasive.

In respect claim 1, Applicant has argued that Stroh, Sommerer, and Greubel et al. fail to teach or suggest a suspension member with first and second frustoconical surfaces and a stud having a third frustoconical surface in which the first, second, and third frustoconical surface extend at the same angle relative to a longitudinal central axis of the stud. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover, applicant needs to analyze Stroh carefully with the modifications. If one of ordinary skill in the art switches the spherical taper to a frustoconical taper, modifications to make the taper in respect to an axis would include making angles of 45 degrees or 60 degrees. Since the angle of the taper in the through hole is made at 45 degrees, the matching taper of the stud has to be 45 degrees as well. The point of reference will always be at the central axis of the hole, the stud, or the nut. An alternative analysis would be to respectively take each central axis of the hole, the stud or the nut and make the angle in respect to each component. When the hole, the stud and the nut are assembled, these components will share a common axis (a central axis of the joint). Therefore, all surfaces will extend at the same angle relative

Art Unit: 3679

to a longitudinal central axis of the stud, or for that matter to the longitudinal central axis of the hole or the nut.

In respect to claim 3, applicant has noted that the surface of Fig. 3 has a wider diameter and therefore would have a different angle. In response, the examiner respectfully disagrees. The angle would be the same no matter how long the diameter is. If the modification makes the angle at 45 degrees, the chamfer would be at 45 degrees in respect to the longitudinal axis. Size is not a function of angularity but rather the longitudinal axis.

In respect to claim 4, applicant argues that there is no teaching in any of the references for making surface 12 at 45 degrees. The examiner disagrees as 45-degree frustoconical surfaces are well known in the art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 703-308-8606. The examiner can normally be reached from 9:30-6:00. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on 703-308-2686. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 3679

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



E.G.

November 4, 2004

DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Attachment: one marked-up copy of Stroh, 6,257,795.
one marked-up copy of Sommerer, 5,062,655.

(Stroh) 6,257,795

Fig. 3



